3.5 - Slope of Lines

1) Assignment Correction and Questions
2) Quiz 3.4 (includes 3.3)
3) Ready to Go On? (Odds)
4) Notes: Slope
5) Practice Time with Slope
6) Assignment Time

Pg. 176 #10-21, 24, 31-33

12) \[2x = 90\]
    \[3y - 2x = 90\]
    \[\Rightarrow\] \[\frac{2x}{2} = \frac{90}{2}\]
    \[x = 45\]

\[3y - 2(45) = 90\]
\[3y - 90 = 90\]
\[3y = 180\]
\[\frac{3y}{3} = \frac{180}{3}\]
\[y = 60\]

\[6y = 90\]
\[5x + 4y = 90\]
\[ 2x + y = 90 \quad \rightarrow \quad 2x + y = 90 \]
\[ 10x - 4y = 90 \]
\[ 10x - 4(90 - 2x) = 90 \]
\[ 10x - 360 + 8x = 90 \]
\[ 18x - 360 = 90 \]
\[ 18x = 450 \]
\[ x = 25 \]

\[ 2x + y = 90 \]
\[ 2(25) + y = 90 \]
\[ 50 + y = 90 \]
\[ y = 40 \]

\[ x + y + z = 180 \]
\[ x + y = 2y \]
\[ x = y \]
\[ (y) + (y) + y = 180 \]
\[ 3y = 180 \]
\[ y = 60 \]
\[ x = 60 \]
After Quiz
- Work on "Ready to Go" on Problems
- Treat as a "quick" assignment
- pg 181 #1-15 odd
- write as first part of assignment but give good label

3.5 Calculating Slope

Slope
- a number that represents the "tilt" of a line as it relates to horizontal and vertical

Given two points on a line P \((x_1, y_1)\) and R \((x_2, y_2)\), the slope can be calculated as

\[
\text{Slope} = m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta y}{\Delta x}
\]

Slope is always reduced, never mixed
3.5 Calculating Slope

Example 1: Calculate the slope of the line that passes through A (3, -4) and B (5, 10)

\[
m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - (-4)}{5 - 3} = \frac{14}{2} = 7
\]

\[
m = \frac{-4 - 10}{3 - 5} = \frac{-14}{-2} = 7
\]

Example 2: What is the slope of a line parallel to line AB

\[
7
\]

Example 3: What is the slope of a line perpendicular to line AB

\[
\frac{1}{7}
\]

3.5 Properties of Slope

**Slope**

- horizontal lines have a slope of zero

\[
m = \frac{3 - 3}{9 - 2} = \frac{0}{7} = 0
\]

- vertical lines do not have a slope (undefined or no slope)

- positive slopes indicate a "rising" line

- negative slopes indicate a "falling" line

**Parallel Lines**

two lines are parallel if and only if they have the same slope

**Perpendicular Lines**

two lines are perpendicular if and only if their slopes are negative reciprocals of each other
Practice WS B
- Do not write on Worksheet
  - don’t graph 5 and 6 but do answer them
- one paper of answers per group
- groups of 3 or less
- bring up to me when done

Assignment (Due Thursday 11/1)

1) Pg. 186 #10-22, 26-28

2) Test Retake?

3) Quarter and first 3 Chapters will close on Thursday, November 8